

ABSTRACT OF THE DISCLOSURE

A system and method for containing plasma and forming a Field Reversed Configuration (FRC) magnetic topology are described in which plasma ions are contained magnetically in stable, non-adiabatic orbits in the FRC. Further, the electrons are contained electrostatically in a deep energy well, created by tuning an externally applied magnetic field. The simultaneous electrostatic confinement of electrons and magnetic confinement of ions avoids anomalous transport and facilitates classical containment of both electrons and ions. In this configuration, ions and electrons may have adequate density and temperature so that upon collisions they are fused together by nuclear force, thus releasing fusion energy. Moreover, the fusion fuel plasmas that can be used with the present confinement system and method are not limited to neutronic fuels only, but also advantageously include advanced fuels.